**Irrigated Lands Regulatory Program**

# SWAMP 2.5 Comparable Data Submission Guide for Project Managers

## Water Quality Chemistry Data

**20 August 2008**

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This document provides for the guidelines for the formatting of water quality chemistry data prior to submission to the Irrigated Lands Regulatory Program per the requirement detailed in Section III.B of the Monitoring and Reporting Program for Coalition Groups, Order No. R5-2008-0005. It is important that the guidelines within this document be followed to the best of ones abilities to ensure that data submitted will be comparable in format and entry business rules. Following these guidelines will aid in the correct and complete loading of the data. Data submissions that do not meet these guidelines, excluding minor changes needed, will be returned to the submitter for corrections. Until the submitted data worksheets are deemed to be correct in format by the ILRP Data Management Staff, they will be considered "pending" and not meeting the conditions of the Electronic Data Submission Requirement in its entirety.

# Water Quality Chemistry Data

The chemistry workbook contains two worksheets labeled "Results" and "LabBatch".

The "Results" worksheet holds all chemistry and bacteria results, including all associated QA data. Each record in this sheet represents a result from a specific analysis for a particular parameter at a single station or for a single QA sample. Types of QA samples that must be recorded in addition to traditional samples include: Field Duplicates, Travel Blanks, Equipment Rinses, Field Blanks, Method Blanks, Laboratory Control Spikes, Matrix Spikes, Reference Control Samples, and duplicate analysis of samples or spikes.

The "LabBatch" worksheet holds summary and validation information of the laboratory batches recorded within the results worksheet.

Specific details on how to enter each sample type will be described in the section following the column heading descriptions below. Descriptions below are modified from the MPSL-MLML SWAMP Database Training Document, located: http://mpsl.mlml.calstate.edu/swamp.htm.

# Column Heading Descriptions –Results Worksheet

*Column: Label (R = Required, O = Optional) Description.*

A. **Lab Sample ID** The Lab Sample ID is assigned by the laboratory to provide identification for an analyzed sample. The format and content is determined by the lab and can be located on the results summary sheet for a sample.

B. **StationCode** The station code is a 9-digit assigned code that uniquely identifies the monitoring location within the master database. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for a list of already assigned station codes. Please note that the proper station code must be used from the list based on station name as well as latitude and longitude GPS coordinates. If you have a new station that needs a code or if the GPS coordinates differ from those in the monitoring report, please contact Melissa Morris at mmorris@water.ca.gov or 916-464-4845 to coordinate the assignment of a new station code.

C. **StationName – TEMP** This column is a temporary column added to aid in recognition of samples on laboratory sheets that do not use the assigned station code as a unique identifier. This column may also be used to identify sites than do not yet have a station code assigned.

D. **EventCode** EventCode represents the initial intent of the sampling event at a particular station.

WQ – Use 'WQ' If the primary reason for sampling is for WaterQuality (no associated Bioassessment or Tissue samples collected)

E. **ProtocolCode** ProtocolCode represents the sampling protocol used for a group of samples taken on the same day for the same project at various sites. This column should reference your QAPP SOPs An example includes: 'CoalitionXYZ_FieldGrab_v1.0_2008'.

F. **LocationCode** LocationCode describes the physical location in the waterbody where the sample was collected. Ex: Bank, Thalweg, Midchannel, OpenWater. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

G. **SampleDate** SampleDate refers to the date the sample was collected in the field, expressed as dd/mmm/yyyy.

H. **CollectionTime** CollectionTime refers to the time when the **first sample** was collected at that site in the field, expressed as xx:xx. (24 hour clock)

I. **CollectionMethodCode** CollectionMethodCode refers to the general method of collection. 'Water_Grab' is used for all water collection samples and 'Sed_Grab' is used for all sediment samples in this program,

J. **SampleTypeCode** Enter the Sample Type. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for other applicable codes.

| Code | Sample Type Description |
|---|---|
| CRM | Homogeneous matrix that closely matches samples being analyzed with certified concentrations of analytes of interest purchased by the laboratory. |
| EquipBlank | DI water pumped through new equipment, cleaned equipment after contamination, equipment for non-surface water, new lot of filters (metals), preserved (if appl.) and analyzed. Sample comment required: Type of equipment, where taken (lab or field) |
| FieldBlank | DI water taken to field, transferred to container, preserved (if appropriate) and treated same as corresponding sample type during the sampling event. |
| Grab | Single environmental sample Field duplicates are recorded as 'Grab' with a replicate of '2'. |
| Integrated | An environmental sample composed of multiple samples. |
| LabBlank | Processed through the entire analytical procedure in a manner identical to the samples. |
| LCS | Blank matrix or solvent spiked with analytes of interest, created and analyzed in the laboratory. |
| MS1 | Matrix spike and matrix spike duplicate. Matrix spike duplicates are recorded as 'MS1' with a LabReplicate of '2'. |
| TravelBlank | Contaminant free DI water, transported to site, handled like sample (never opened), and returned to lab for analysis. |

K. **Replicate** Should remain '1' unless the entry is a field duplicate, then it would equal '2'.

L. **CollectionDepth** The default values for this column, unless otherwise recorded, should be '0.1' for water samples, '2' for sediment samples, or '–88' for non-field generated samples.

M. **UnitCollectionDepth** This field contains the units associated with the above "CollectionDepth" value. The default values for this column, unless otherwise recorded, should be 'm' (meters) for water samples or 'cm' (centimeters) for sediment samples.

N. **ProjectCode** The Project ID is a unique identification number that distinguishes who the data was originated by. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

O. **AgencyCode** Enter the acronym for the Agency that collected the sample. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

P. **CollectionComments** The comments field should be used for any notes or comments specifically related to the sample collection.

Q. **SampleID** This Sample ID is a unique identification number that distinguishes a sample from others and is created by the organization directing the sampling. Generally this number is used to track the sample throughout the sampling and analyses processes. This number will likely be on the sample container received from the field crew and the associated Chain-of-custody forms. If there is no number, leave blank

R. **PreparationPreservation** This field describes any preparation or preservation done on the samples prior to analysis that is not included in the analysis method or when an evaluation of holding times is important. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes. If no preparation or preservation method was performed the default value is 'None'.

S. **PreparationPreservationDate** This field describes the date on which the preparation or preservation was performed and is formatted in "day time" format as dd/mmm/yyyy xx:xx. If there is no preparation 'None' then the value should be listed as 01/Jan/1950 00:00 (to indicate *none*).

T. **DigestExtractMethod** This field describes any digestion or extraction performed on the sample prior to analysis that is not included in the analysis method or when an evaluation of holding times is important. The Digest/Extract method should be listed on the laboratory summary sheet or stated within the cover letter for the analysis results. Please see ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes. If no digestion or extraction method was performed the default value is 'None'.

U. **DigestExtractDate** The Digest Extract Date is that on which the digestion or extraction is performed and should be formatted in "day time" format as dd/mmm/yyyy xx:xx. If no digestion or extraction method was performed the default value is 01/Jan/1950 00:00 (to indicate *none*).

V. **LabBatch** The Lab Batch Code is assigned to and identifies all samples digested, extracted and analyzed together including any laboratory quality control samples associated with the batch. See *Appendix A* for guidelines on assigning laboratory batch IDs.

W. **AnalysisDate** This field states the date on which the sample is analyzed on the instrument and should be formatted in "day time" format as dd/mmm/yyyy xx:xx.

X. **LabReplicate** The Lab Replicate differentiates the first sample analyzed from all subsequent laboratory duplicates. The default is '1' for the first sample and increases by one for each successive replicate.

Y. **MatrixName** This field describes the sample matrix.

For field-generated samples the matrix should be:

'samplewater' – for all environmental water samples

'sediment' – for all environmental sediment samples

For lab-generated samples the matrix should be:

'labwater' – for all samples created using purchased spring water or laboratory tap water

'blankwater' – for all samples created using laboratory Type I or Type II water, purchased reagent water or water that is run through a filtration process in a laboratory, such as Deionized (DI) or Milli-Q (MQ) water.

'samplewater' – for all samples created using environmental sample water as the matrix such as matrix spikes

'blankmatrix' – for all samples created using purchased or created blank medium

'sediment' – for all samples created using reference sediment

Z. **MethodName** The Method is the analysis method that is used by the laboratory to analyze the sample. If a laboratory has modified an EPA standard method, the laboratory agency needs to add "M" to the Method Name. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

AA. **AnalyteName** The Analyte is the parameter for which the analysis is conducted and result is reported. Please see the ILRP ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

AB. **FractionName** This field allows for a further description of the analyte when needed. For example, metals are often expressed as Total or Dissolved and therefore this description should be used within the fraction field. If there is no need to describe the analyte in such a manner (non-metals), type 'None' in this field.

AC. **Unit** The Unit is that in which the chemistry result is measured or expressed. The ILRP SWAMP2.5 Comparable Lookup Lists will detail the acceptable units for a given analyte in a sample and should be used to fill in this field **Coming Soon**. Note that the results of surrogate samples will have '%' as the unit (% recovery).

AD. **DilFactor** This field describes any extra dilution of the sample that was required to obtain the measured value. Generally, a dilution is required when the measured value falls outside of the standard calibration curve of the method and instrument. When a sample requires a dilution, the MDL and RL must also be raised by that dilution factor. This field does not include dilutions that are standard to the methods being performed. A QACode of D is required when a dilution is performed on the sample. If no dilution was performed, the default value is '1'.

AE. **Result** This field should state the measured value of the analysis. All reported significant figures should be recorded. If a result is Non-Detect (ND), then the result should be reported as 'negative-the-MDL' (ex -0.2). If the measurement was unable to be performed, then the Result should be recorded as '-88'. The appropriate result qualifier code should be used in these instances (see below).

AF. **ResultQualCode** The Results Qualifier Code qualifies the result for the sample, if necessary. This field may be blank, however in the event that a qualifier is needed such as a non-detect, no result, EPA 'J' flag, or bacteria result, please use the below table to select the appropriate value.

| ResQualCode | Description |
|---|---|
| = | Equals, for Bacterial Analysis |
| > | Greater Than, for Bacterial Analysis |
| < | Less Than, for Bacterial Analysis |
| DNQ | Detected Not Quantified (IE EPA 'J' flag) |
| ND | Not Detected |
| NA | Not Analyzed |
| NR | No Result |

AG. **MDL** The MDL (method detection level) is the lowest possible calculated detection limit associated with a given method and analyte. The MDL should be

reported on the lab summary sheet with the associated measured result. If an MDL is not listed on the lab summary sheet, then the default value should be '-88' with a QACode of 'NMDL'.

AH. **RL** The RL (reporting limit) is the lowest detection limit that the laboratory has confidence in (non-calculated) for reporting measured values. The RL should be reported on the lab summary sheet with the associated measured result. . If an RL is not listed on the lab summary sheet, then the default value should be '-88'

AI. **QACode** The QA Code describes any special conditions or situation occurring during or prior to the analysis to achieve the result. The default code, indicating no special conditions, is 'None'. If more than one code should be applied to a record, the convention is to list them in alphabetical order separated by commas and no spaces. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

AJ. **ExpectedValue** The expected value refers to the concentration or recovery percentage of an analyte that is known to be in a sample. Most often this field is used when recording the spike concentration amount for laboratory control spikes as well as matrix spike samples (matrix background + spiked amount). Surrogates should have an expected value of '100'.

AK. **LabResultComments** The Lab Result Comments field holds any analysis-related comments. These could be comments needed to clarify any portion of the analysis or which is not accommodated by any other field, such as Percent Recovery (PR), or Relative Percent Difference RPD). (for example a percent recovery would be recorded as PR 98.7)

# Column Heading Descriptions –LabBatch Worksheet

*Column: Label (R = Required, O = Optional) Description.*

A. **LabBatch** (R) The LabBatch is a unique code, provided by the laboratory, that represents a group of samples processed together. It groups all environmental samples with their supporting QA samples and will be used to verify completeness based on your QAPP. The value in this field connects this worksheet with the results worksheet. See *Appendix A* for guidelines on assigning laboratory batch IDs.

B. **LabAgency** (R) AgencyCode refers to the organization, agency or laboratory that performed the analysis of the sample. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for applicable codes.

C. **LabSubmissionCode** (R) The LabSubmissionCode is a unique batch qualifier code assigned to the LabBatch as a whole which references the quality of the data in the LabBatch based on yours and the labs QAPP. If the LabSubmissionCode of A is used, meaning Acceptable you or the lab are ensuring that all QAQC protocols were met for the lab batch. If anything other than A is used, a LabBatchComment is required. If there are any QAcodes within the results worksheet other than 'None', then a code of A,MD must be used and a LabBatchComment must be included. Please see the ILRP SWAMP2.5 Comparable Lookup Lists for all applicable codes.

D. **SubmittingAgencyCode** (R) This is the organization or agency that is responsible for submission of the data to the database.

E. **LabBatchComm** (O) LabBatchComments records any comments relating to the LabBatch as a whole, including any samples outside of criteria limits, any missing QC, etc.

# Business Rules for Special Sample Types

There are several types of special circumstances discussed in this section. One type includes samples that are generated or created by the laboratory (LABQA). Another type includes environmental samples that are modified by the laboratory. A third type includes samples that are created by the sampling agency that are not environmental samples and may or may not have been created in the field (FIELDQA).

For a list of QA sample types required for each type of chemical analysis, please see the SWAMP Laboratory QA Checklist.

See the MRP QAPP Guidelines for instruction on how to calculate the percent recovery (PR) and relative percent difference (RPD) for spikes & duplicate samples.

## Bacteria/Pathogen samples

Bacteria/Pathogen samples are generally recorded in the same way as chemistry samples, except as follows:

W. **AnalysisDate** Include the analysis time as well as the date in this format dd/mmm/yyyy xx:xx

AF. **ResultQualCode** This field records the <, >, and = as related to the results.

## Laboratory-generated QA samples (LABQA)

All samples generated from within the laboratory, such as LabBlank, LCS, CRM, etc. have specific business rules for certain columns, which are as follows:

B. **StationCode** 'LABQA'

E. **ProtocolCode** 'Not Applicable'

F. **LocationCode** 'Not Applicable'

G. **SampleDate** Date sample was digested/extracted, expressed as dd/mmm/yyyy. When no digestion/extraction was performed, SampleDate is equal to the analysis date.

H. **CollectionTime** '0:00'

There are situations within a batch when two identical sample types are used for QA reasons and the only way to differentiate between them is to give them each a different CollectionTime. For example, when more than one LabBlank, CRM or LCS is digested, extracted or analyzed in the same batch on the same day but are not replicates of each other, one CollectionTime should be 0:00 and the other 0:15.

I. **CollectionMethodCode** Not Applicable

J. **SampleTypeCode** 'LCS', 'LabBlank', or 'CRM'

L. **CollectionDepth** '-88'

M. **UnitCollectionDepth** 'm' for water or 'cm' for sediment

N. **ProjectCode** Use your specific lab originated project code

O. **AgencyCode** Organization or agency that analyzed the sample

Y. **Matrix** Water samples - labwater or blankwater
Sediment samples - blankmatrix (commercially generated product) or sediment (if laboratory is using solvent, water or nothing)

AJ. **ExpectedValue** For LCS, CRM, MS1, Surrogate enter the value expected

AK. **LabResultComment** For LCS/LCSD & CRM record the calculated percent recovery (PR) and relative percent difference (RPD).

## Laboratory-modified QA samples

There are several types of samples discussed in this section that are generated or modified within the laboratory. The first is a Matrix Spike, which is a modified or analyte-spiked field sample. The second is a laboratory-generated duplicate of a field sample. At times, laboratories use samples not generated through your project to satisfy batch QA requirements. This third type is a Non-Project sample.

For these samples, all fields describing the sample (StationCode, EventCode, ProtocolCode, LocationCode, SampleDate, CollectionTime, CollectionMethodCode, CollectionDepth, UnitCollectionDepth, ProjectCode, AgencyCode) remain the same as the native sample. If the native sample is not part of your project use the rules for Non-Project Matrix Spike and Duplicate Samples (000NONPJ) below.

**Laboratory Duplicate Samples**

For laboratory-generated Duplicate samples, the only field that is different than the native field sample is the **LabReplicate** which should have the value of '2' or or more if done and the **ExpectedValue** and **LabResultComment**. The **ExpectedValue** column should record the original sample's measured value and the **LabResultComment** column should record the calculated relative percent difference (RPD).

**Matrix Spike (MS)**

For Matrix Spike samples, the only fields that are different than the native field sample is the **SampleTypeCode**, which should be 'MS1' and potentially the 'Replicate' and the filling in of the **ExpectedValue** and **LabResultComment** columns.

LabSampleID Recommended - provide lab specific identification for an analyzed sample. It is preferrable to add -Dup, -MS, -MSD to the end of the Lab ID to help confirm the SampleType and the LabSampleID of the native sample.

'MS1' - Matrix Spike and Matrix Spike Duplicate performed on a Grab or Integrated sample
'MS2' - Matrix Spike and Matrix Spike performed on a FieldDup (Grab or Integrated with a Replicate of 2)

Following is a table that describes the way to format matrix spike samples performed on single, duplicate, and triplicate field grabs. The **SampleTypeCode** MS represents an MS/MSD pair.

| **v2.5 SWAMP Database** | |
|---|---|
| *SampleTypeCode* | *Sample Replicate* |
| **One pair of MS/MSD associated to one grab** | |
| Grab | 1 |
| MS1 (MS) | 1 |
| MS1 (MSD) | 2 |
| **One pair of MS/MSD associated to one grab - FieldDup present** | |
| Grab (MS/MSD done on this one) | 1 |
| Grab | 2 |
| MS1 (MS) | 1 |
| MS1 (MSD) | 2 |
| **One pair of MS/MSD associated to one FieldDup** | |
| Grab | 1 |
| Grab (MS/MSD done on this one) | 2 |
| MS2 (MS) | 1 |
| MS2 (MSD) | 2 |

## Field-generated QA samples (FIELDQA)

There are two types of samples discussed in this section that are generated in the field. The first is when a field-generated QA sample is created at a specific station and that information is important to record. The second is when a field-generated QA sample is created for a sampling trip or if the station is not recorded.

Station Specific
For analyses that require an EquipBlank, FieldBlank, or FilterBlank to accompany a sampling event and it is important to record the station information, the data is entered into the SWAMP database in the same manner as the samples in the same group. The specifics are as follows:

I. **CollectionMethodCode** 'Not Applicable'

J. **SampleTypeCode** 'EquipBlank', 'FieldBlank' or 'FilterBlank'

K. **Replicate** '1'

L. **CollectionDepth** '-88'

M. **UnitCollectionDepth** 'm' for water or 'cm' for sediment

Y. **Matrix** 'labwater' or 'blankwater'

Not Station-Specific (FIELDQA)
For analyses that require an EquipBlank, FieldBlank, FilterBlank, TravelBlank or DIBlank to accompany a sampling event and it is not important to record the station information. The specifics are as follows:

B. **StationCode** 'FIELDQA'

F. **LocationCode** 'Not Applicable'

G. **SampleDate** Date sample was created. TravelBlank should be entered as the date the Travel Blank becomes part of the sample group (i.e., leaves the lab for the sampling event).

H. **CollectionTime** Time sample was created or '0:00'

I. **CollectionMethodCode** 'Not Applicable'

| | |
|---|---|
| J. **SampleTypeCode** | ‘EquipBlank’, ‘FieldBlank’, ‘FilterBlank, ‘TravelBlank’ or ‘DIBlank’ |
| K. **Replicate** | ‘1’ |
| L. **CollectionDepth** | ‘-88’ |
| M. **UnitCollectionDepth** | ‘m’ for water or ‘cm’ for sediment |
| N. **ProjectCode** | Project associated with the sample |
| O. **AgencyCode** | Organization or agency that created the sample |
| Y. **Matrix** | ‘labwater’ or ‘blankwater’ |

# Appendix A

# ILRP SWAMP 2.5 File & Batch Name Guideline

## File Name

XXXXX = Lab specific (same as in batch name if file is analysis specific)

Coalition_Matrix_AnalysisGroup_LabAgency_XXXXX_SampleDates

**Examples**

SJC_W_ PEST_APPL_55917_041508_Apr08

SJC_S_TOX_AQUA_SJ032508_Mar08

ESJ_W_BAC_INORG_M_CALTEST_I041093_Apr08

## Batch Name

XXXXX = Lab specific

LabAgency_Coalition_XXXXX_Matrix_Analysis

**Examples**

Caltest_ESJ_MMS5891_W_TMLS

Caltest_SJC_WCO4012_W_NO2

APPL_ESJ_55336_012908_W_OP

NCL_ESJ_R51398A_W_GLY

NAUT_SJC_041508_S_HYA

ASL_SJC_012408b_W_CER

# Appendix A ILRP SWAMP 2.5 File & Batch Name Guideline Acronym LookUp

## COALITIONS

| | |
|---|---|
| **CRC** | California Rice Commission |
| **ESJ** | East San Joaquin County Delta Water Quality Coalition |
| **MED** | Merced Irrigation District |
| **MID** | Modesto Irrigation District |
| **OID** | Oakdale Irrigation District |
| **SAC** | Sacramento Valley Water Quality Coalition |
| **SJC** | San Joaquin County Delta Water Quality Coalition |
| **SID** | South San Joaquin Irrigation District |
| **SSJ** | Southern San Joaquin Water Quality Coalition |
| **TID** | Turlock Irrigation District |
| **WS** | Westside Water Quality Coalition |

## LAB AGENCIES

| | |
|---|---|
| APPL | APPL |
| Applied Marine Sciences, Inc. | AMS |
| AquaScience | AQUA |
| Babcock | BAB |
| Basic Laboratory, Inc. | BAL |
| BSK | BSK |
| California Laboratories Services | CLS |
| Caltest | CAL |
| CRG Marine Labs | CRG |
| DFG-Marine Pollution Studies Lab. | MPSL |
| DFG-Water Pollution Control Lab | WPCL |
| Fruit Grower's Laboratory | FGL |
| High Sierra Water Laboratory | HSWL |
| MLML-Trace Metals Lab | MLML-TM |
| North Coast Laboratories | NCL |
| Pacific Ecorisk | PER |
| Sierra Foothill Laboratory, Inc. | SFL |
| ToxScan | TS |
| The Twining Laboratories | TWL |
| UCD-ATL | ATL |
| UCD-EQL | EQL |
| UCD-GC | GC |

## MATRICES

| | |
|---|---|
| Interstitial water | I |
| Sediment | S |
| Tissue | T |
| Vegetation | V |
| Water | W |

## CONVENTIONAL WATER CHEMISTRY GROUPS (FILES WITH MULTIPLE ANALYSIS)

| | |
|---|---|
| Bacteria | BACT |
| Inorganics | INORG |
| Metals | M |
| Pesticides | PEST |
| Toxicity | TOX |

## CONVENTIONAL WATER CHEMISTRY ANALYSES (BATCHES AND NON-GROUPED FILES)

| | | | |
|---|---|---|---|
| Alkalinity as CaCO3 | ALK | Nitrite as N | NO2 |
| Ammonia as N | NH3 | Nitrate as N | NO3 |
| Bicarbonate as CaCO3 | BiCO3 | Nitrate + Nitrite as N | NO3+2 |
| Biological Oxygen Demand | BOD | Oil and Grease | O&G |
| Boron | B | Orthophosphate as P | OPO4 |
| Bromide | Br | Perchlorate | ClO4 |
| Carbonate as CaCO3 | CO3 | pH | pH |
| Chemical Oxygen Demand | COD | Pheophytin a | PHEO |
| Chloride | CL | Phosphorous, Total as P | TPHOS |
| Chlorophyll a | CHL | Potassium | K |
| Color | COLOR | Sulfate | SO4 |
| Conductivity | COND | Suspended Sediment Concentration | SSC |
| Cyanide | CN | Total Dissolved Solids | TDS |
| Dissolved Organic Carbon | DOC | Total Kjeldhal Nitrogen | TKN |
| Fluoride | F | Total Organic Carbon | TOC |
| Hardness as CaCO3 | HARD | Total Suspended Solids | TSS |
| Hydroxide as CaCO3 | OH | Turbidity | TURB |
| MBAS | MBAS | | |

| ORGANIC CHEMISTRY ANALYSES | |
|---|---|
| BTEX-MTBE | BTEX |
| Carbamates | CARB |
| Chlorothalonil/PCNB | C-PCNB |
| Diesel Range Organics | DRO |
| ELISA - Chlorpyrifos / Diazinon | EL-OP |
| Glyphosate | GLY |
| Herbicides | HERB |
| Musk | MSK |
| NonylPhenols | NP |
| Organochlorine Pesticides | OCH |
| Organophosphate Pesticides | OP |
| Paraquat | PQT |
| Pentachlorophenol/Trichlorophenol | PCP-TCP |
| Phenolics | TPHNL |
| Polychlorinated Biphenyls Congeners | PCB |
| Polynuclear Aromatic Compounds | PAH |
| Polybrominated Diphenyl Ethers | PBDE |
| Pyrethroids / Pyrethrins | PYD-PYN |
| Semi-Volatile Organic Compounds | SVOC |
| Surfactants | SURF |
| Tributyltin / Dibutyltin | TBT |
| Triazines | TRIAZ |
| Volatile Organic Compounds | VOC |

| SEDIMENT PHYSICAL CHARACTERISTIC ANALYSES | |
|---|---|
| Grain Size | GS |

| METAL CHEMISTRY ANALYSES | |
|---|---|
| Mercury | Hg |
| Metals | M |
| Selenium | Se |
| Trace Metals | TM |
| Trace Metals – High Salinity | TMHS |
| Trace Metals – Low Salinity | TMLS |

| TOXICITY ANALYSES | |
|---|---|
| All analyses | TOX |
| Ceriodaphnia | CER |
| Selenastrum | SEL |
| Pimephales | PIM |
| Hyalella | HYA |

| BACTERIA ANALYSES | |
|---|---|
| All analyses | BAC |

| TISSUE ANALYSES | |
|---|---|
| Lipids | LIP |